

Date: October 23, 2000

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**TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US)
CONCERNING A FILING UNDER 35 USC 371**

International Application No.: PCT/AU99/00308
International Filing Date: 23 April 1999
Priority Date Claimed: 24 April 1998
Title of Invention: BAG HANDLE AND METHOD AND MEANS OF ATTACHMENT
Applicant(s) for DO/EO/US: Edwin Lorenzo Bogatez

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. (X) This is a **FIRST** submission of items concerning a filing under 35 USC 371.
2. () This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 USC 371.
3. (X) This express request to begin national examination procedures (35 USC 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 USC 371(b) and PCT Articles 22 and 39(1).
4. (X) A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. (X) A copy of the International Application as filed (35 USC 371(c)(2))
 - a) () is transmitted herewith (required only if not transmitted by the International Bureau).
 - b) (X) has been transmitted by the International Bureau.
 - c) () is not required, as the application was filed in the United States Receiving Office (RO/US).
6. () A translation of the International Application into English (35 USC 371(c)(2)).
7. (X) Amendments to the claims of the International Application under PCT Article 19 (35 USC 371(c)(3))
 - a) () are transmitted herewith (required only if not transmitted by the International Bureau).
 - b) () have been transmitted by the International Bureau.
 - c) () have not been made; however, the time limit for making such amendments has NOT expired.
 - d) (X) have not been made and will not be made.
8. () A translation of the amendments to the claims under PCT Article 19 (35 USC 371(c)(3)).
9. () An oath or declaration of the inventor(s) (35 USC 371(c)(4)).
10. (X) A copy of the International Preliminary Examination Report with any annexes thereto, such as any amendments made under PCT Article 34.
11. () A translation of the annexes, such as any amendments made under PCT Article 34, to the International Preliminary Examination Report under PCT Article 36 (35 USC 371(c)(5)).

U.S. Application No.
Unknown

International Application No.
PCT/AU99/00308

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12. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
13. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
14. ☒ A FIRST preliminary amendment.
☐ A SECOND or SUBSEQUENT preliminary amendment.
15. ☐ A substitute specification.
16. ☐ A power of attorney and/or address letter.
17. ☒ International Application as published.
18. ☐ Small Entity Statement.
19. ☐ PCT Form PCT/IPEA/402.
20. ☐ PCT Form PCT/IB/308.
21. ☒ PCT request form.
22. ☒ Other Items or information:
PCT Form PCT/ISA/210 -- Search Report
PCT Form PCT/IPEA/401 -- Demand
23. ☒ A return prepaid postcard.
24. ☒ The following fees are submitted:

1. 09/674142/0001

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FEES

BASIC FEE			\$1,000
CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE
Total Claims	17 - 20 =	0 ×	\$18 \$ 0
Independent Claims	9 - 3 =	6 ×	\$80 \$ 480
Multiple dependent claims(s) (if applicable)			\$270 \$ 0
TOTAL OF ABOVE CALCULATIONS			\$ 1480
Reduction by 1/2 for filing by small entity (if applicable). Verified Small Entity statement must also be filed. (NOTE 37 CFR 1.9, 1.27, 1.28)			\$ 0
TOTAL NATIONAL FEE			\$1480
TOTAL FEES ENCLOSED			\$1480
amount to be refunded:			\$
amount to be charged:			\$

25. (X) The fee for later submission of the signed oath or declaration set forth in 37 CFR 1.492(e) will be paid upon submission of the declaration.
26. (X) A check in the amount of \$1480 to cover the above fees is enclosed.
27. () Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40 per property.
28. (X) The Commissioner is hereby authorized to charge only those additional fees which may be required, now or in the future, to avoid abandonment of the application, or credit any overpayment to Deposit Account No. 11-1410. A duplicate copy of this sheet is enclosed.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

KNOBBE, MARTENS, OLSON & BEAR, LLP
620 Newport Center Drive
Sixteenth Floor
Newport Beach, CA 92660

Signature

Michael H. Trenholm
Printed Name

37,743
Registration Number

VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL-ENTITY STATUS

1. I, the undersigned, do hereby declare that:

- a. ☐ I am an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying reduced fees to the Patent and Trademark Office with regard to the invention described in the patent or application identified above; OR
- ☐ While I am not an inventor, I declare that rights under contract or law have been conveyed to and remain with me with regard to the invention described in the patent or application identified above. I would qualify as an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying fees to the United States Patent and Trademark Office if I had made the invention; OR
- c. ☐ I am the owner of the small business concern identified below OR
- ☒ I am an official of the small business concern empowered to act on behalf of the concern identified below:

NAME OF SMALL BUSINESS: Handletec Pty LtdADDRESS OF SMALL BUSINESS: 51-57 Carlotta Street, Artarmon, New South Wales, 2064, Australia

If either of the boxes in item (c) is checked, I further declare that the above-identified small business concern qualifies as a small business concern as defined in 13 CFR 121.1301 through 121.1305, and reproduced in 37 CFR 1.9(d), for purposes of paying reduced fees to the United States Patent and Trademark Office, in that the number of employees of the concern, including those of its affiliates, does not exceed 500 persons. For purposes of this statement, (1) the number of employees of the business concern is the average over the previous fiscal year of the concern of the persons employed on a full-time, part-time or temporary basis during each of the pay periods of the fiscal year, and (2) concerns are affiliates of each other when either, directly or indirectly, one concern controls or has the power to control the other, or a third party or parties controls or has the power to control both. I further declare that rights under contract or law have been conveyed to and remain with the small business concern identified above with regard to the invention described in the patent or application identified above; OR

- d. ☐ I am an official empowered to act on behalf of the nonprofit organization identified below:

NAME OF NONPROFIT ORGANIZATION: _____

ADDRESS OF NONPROFIT ORGANIZATION: _____

TYPE OF NONPROFIT ORGANIZATION: _____

- ☐ university or other institution of higher education; OR
- ☐ tax exempt under Internal Revenue Service Code (26 USC 501(a) and 501(c)(3)); OR
- ☐ nonprofit scientific or educational organization qualified under a nonprofit organization statute under a statute of a state of the United States of America
(name of state: _____)
(citation of statute: _____); OR
- ☐ would qualify as tax exempt under Internal Revenue Service Code (26 USC 501(a) and 501(c)(3)) if located in the United States of America; OR
- ☐ would qualify as nonprofit scientific or educational organization qualified under a nonprofit organization statute under a statute of a state of the United States of America if located in the United States of America
(name of state: _____)
(citation of statute: _____)

If Box (d) is checked, I further declare that the nonprofit organization identified above qualifies as a nonprofit organization as defined in 37 CFR 1.9(e) for purposes of paying reduced fees to the United States Patent and Trademark Office regarding the invention described in the patent or application identified above.



RECEIVED

2. The individual, concern or organization identified above has not assigned, granted, conveyed or licensed, and is under no obligation under contract or law to assign, grant, convey or license, any rights in the invention to any person who would not qualify as an independent inventor under 37 CFR 1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).
3. If the rights held by the above-identified individual, concern or organization are not exclusive, each individual, concern or organization having rights in the invention are identified below. Each such individual, concern or organization must file separate verified statements averring to their status as small entities.

***NOTE: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27).**

FULL NAME: _____

ADDRESS: _____

☐ INDIVIDUAL ☐ SMALL BUSINESS CONCERN ☐ NONPROFIT ORGANIZATION

FULL NAME: _____

ADDRESS: _____

☐ INDIVIDUAL ☐ SMALL BUSINESS CONCERN ☐ NONPROFIT ORGANIZATION

4. I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small-entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b)).

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

NAME OF PERSON SIGNING: Edwin Lorenzo BOGATEZ

TITLE OF PERSON (if not an owner or individual): Director

ADDRESS OF PERSON SIGNING: 51-57 Carlotta Street, Artarmon, New South Wales
2064, Australia

NAME OF PERSON SIGNING: _____

TITLE OF PERSON (if not an owner or individual): _____

ADDRESS OF PERSON SIGNING: _____

NAME OF PERSON SIGNING: _____

TITLE OF PERSON (if not an owner or individual): _____

ADDRESS OF PERSON SIGNING: _____

SIGNATURE: _____

DATE: 15 December, 2000

SIGNATURE: _____

DATE: _____

SIGNATURE: _____

DATE: _____

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Edwin Lorenzo Bogatez)
)
 Intl Appl No. : PCT/AU99/00308)
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 Int. Filed : 23 April 1999)
)
 For : BAG HANDLE AND)
 METHOD AND MEANS OF)
 ATTACHMENT)
)

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
 Washington, D.C. 20231

Dear Sir:

Preliminary to examination on the merits, please amend the above-captioned U.S. national phase application as follows:

IN THE CLAIMS:

Please cancel Claims 3 - 6 and 14.

Please amend the Claims as follows:

In Claim 9, line 1, please delete "or 8".

Please add the following new claims:

15. An obstruction member for attaching a cord handle to a bag or other receptacle, wherein the obstruction member defines a cord receiving cavity adapted to engage an agletted cord and wherein the obstruction member can be sized so as to become large enough to be unable to pass through an aperture in the bag and wherein the obstruction member is made of a material suitable for bonding to the aglet of the cord.

16. A cord assembly adapted to form the handle of a bag, the assembly comprising:
 a cord having a first end;
 an aglet formed at a first end of the cord; and

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Int. Filed : 23 April 1999

an obstruction member adapted to engage with the first end of the cord and a side wall of the bag so as to retain the cord to the side wall of the bag, wherein the aglet is adapted to be coupled to the obstruction member so as to inhibit subsequent removal of the aglet from the obstruction member following insertion of the aglet into the obstruction member to thereby secure the cord assembly to the side wall of the bag.

17. The assembly of Claim 16, wherein the aglet is adapted to be affixed to the obstruction member.

18. The assembly of Claim 17, wherein the aglet is made from a material that permits bonding of the aglet to the obstruction member through the application of heat.

19. the assembly of Claim 16, wherein the aglet is adapted to be deformed to inhibit removal of the aglet from the obstruction member.

20. the assembly of Claim 19, wherein the obstruction member defines an aperture that the aglet is positioned therein and wherein the aglet is deformed to permit removal from the aperture of the obstruction member.

21. A method of fitting a base inset into a bag, the method comprising:

opening the mouth of the bag via the application of a partial vacuum to at least one side wall of the bag;

inserting the base into the opened bag; and

affixing the base insert to a bottom surface of the bag.

22. The method of Claim 21, wherein affixing the base insert to the bottom surface of the bag comprises positioning adhesive at the interface between the base insert and the bottom surface of the bag.

Respectfully submitted,
KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: 10/23/00

By: 

Michael H. Trenholm
Registration No. 37,743
Attorney of Record
620 Newport Center Drive
Sixteenth Floor
Newport Beach, CA 92660
(909) 781-9231

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BAG HANDLE AND METHOD AND MEANS OF ATTACHMENT**Introduction**

The present invention relates to an apparatus for attaching a handle to a bag, and to a method of attaching a handle to a bag, in particular, but not only, to shopping bags with flexible cord handles.

Throughout this specification, unless the context requires otherwise, the word "comprise", or variations such as "comprises" or "comprising", will be understood to imply the inclusion of a stated element, integer or step, or group of elements, integers or steps, but not the exclusion of any other element, integer or step, or group of elements, integers or steps.

Description of the Prior Art

One type of bag relevant to the field of this invention, has a pair of flexible cord handles which pass through apertures in the bag, the free ends of the handles being tied to prevent disengagement of the handle from the bag. The flexible cord handle is comfortable to use, provides an aesthetically pleasing, high quality product and is easier to pack than rigid handled bags since the flexible cord will drape downwardly on bag when not in use.

Connecting such handles to the bag wall itself, however, creates certain difficulties. Normally the handle is manually passed through the apertures adjacent to the open upper end of the bag and the free ends tied in knots to prevent the handle from disengaging from the bag. This is a slow, expensive and labour intensive process, particularly if the handle is produced from a woven cord which has very little rigidity in the axial direction. Further, the possibility of human error cannot be discounted and if the knots are improperly tied, the handle may disengage from the bag altogether leading to damage of the bag contents.

Handles are also known to be fitted to bags via adhesive strips which makes their security dependant on the adhesion and tearability of the strip and/or bag.

The present invention is also concerned with subject matter disclosed in WO97/48550 and the contents of the specification of that published International patent application are also incorporated herein by reference.

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In the art of bag manufacture and with particular regard to the application of flexible handles to bags as discussed in the aforementioned specifications, the mechanisation and automation of applying such handles has been highly desirable but hitherto unavailable. Apparatus which automates the manufacture of bags of the type depicted in Fig 1 of WO97/48550 have been in use for many years. The output of such equipment being a completed bag without handles attached which are later added to the bag by a manual operation. WO97/48550 discloses a method and means for integrating the application of handles to bags by eliminating manual handling.

Summary of the Invention

The present invention provides a method and apparatus for attaching flexible cord handles to bags or other receptacles which offers a useful alternative to known arrangements.

In a first aspect, the present invention provides a method for attaching a flexible cord handle to a bag comprising the steps of:

- forming at least one aperture through a bag wall;
- passing an end of a cord, having an aglet thereon, through the at least one aperture in the bag wall;
- providing at least one obstruction member with at least one cord receiving cavity therein adapted to receive the aglet of at least one cord;
- inserting the aglet into the cord receiving cavity of the obstruction member so that the aglet is located at least partially within the cavity; and
- bonding the aglet to the obstruction member.

In another form of this first aspect of the invention there is provided a method for attaching a flexible cord handle to a bag comprising the steps of:

- forming at least one aperture through a bag wall;
- passing an end of a cord, having an aglet thereon, through the at least one aperture without substantially deforming said aglet; and
- shaping the aglet to form an obstruction member which cannot pass through the aperture.

The size of the aperture formed through the bag wall is preferably only marginally larger than the largest transverse cross-sectional dimension of the aglet.

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The obstruction member provided in accordance with the above method may be of many different forms. For example, the cord receiving cavity within the obstruction member may pass entirely through the obstruction member. In such embodiments, the aglet may be positioned some distance away from the end of the cord, and the cord may be passed through the obstruction member until the aglet is located at least partially within the obstruction member. Such an embodiment would provide a length of cord protruding from the obstruction member which may be aesthetically desirable or serve some further useful function.

In other embodiments the obstruction member may provide advertising, for example a company logo printed on the exposed side of the member, or the member may be shaped for the purposes of advertising.

The step of bonding the aglet to the obstruction member may be performed by sufficiently heating some or all of the obstruction member to cause said bonding. In some embodiments, the step of heating the obstruction member may be performed using microwave heating techniques. In cases such as this the heating preferably occurs only within a small part of the obstruction member close to the aglet. Such a technique may be desirable for the purposes of speed, efficiency of production, or to minimise heat damage to the cord or aglet.

Alternatively, bonding between the aglet and the obstruction member may be effected by the use of an adhesive.

In some embodiments of the method of the invention, the obstruction member may have dimensions such that it can pass through the aperture of the bag. In such embodiments, the step of bonding the obstruction member to the aglet may occur before the step of passing the cord with aglet and attached obstruction member through the aperture. In order to attach the cord handle to the bag in such embodiments the method further includes the step of:

shaping the obstruction member such that its dimensions no longer permit it to pass through the aperture.

Furthermore, in a similar embodiment the aglet itself may function as the obstruction member. In cases such as this the aglet must be of a material such that it can provide a sufficiently sturdy obstruction once it is shaped while fixed to the cord so that its dimensions no longer permit it to pass through the aperture.

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For such embodiments the step of shaping the obstruction member may be performed in such a way that the obstruction member provides advertising material or decoration, for example it may be deformed into the shape of a country or a company logo or such like.

A second aspect of the present invention provides an obstruction member for attaching a cord handle to a bag or other receptacle, the obstruction member comprising:

a cord receiving cavity adapted to engage an agletted cord;

said member being large enough, or adapted to be shaped so as to become large enough, to be unable to pass through an aperture in the bag wall; and

being of a material adapted to be bonded to the aglet.

In embodiments where the obstruction member has dimensions such that it may pass through the aperture of the bag, it must be made of a material suitable for shaping to the required dimensions to not pass through the aperture.

The cord receiving cavity within the obstruction member may be a passageway entirely through the obstruction member.

In other embodiments the obstruction member may provide advertising, for example a company logo printed on the exposed side of the member, or the member may be shaped for the purposes of advertising.

A third aspect of the present invention provides an agletted cord. The cord may be made of any suitable flexible material. The agletted cord must be able to pass through a corresponding aperture in a bag wall.

The aglet must be sufficiently firmly attached to the cord to hold the cord in place when in use as a bag handle.

The aglet may function as an obstruction member. In such cases the aglet must be adapted to be shaped to dimensions to provide an effective obstruction.

Alternatively, the aglet must be made of a suitable material adapted to be bonded or adhered to an obstruction member already sized to be unable to pass through the aperture.

A fourth aspect of the present invention provides a bag or receptacle made according to the aforementioned method. Preferably the bag comprises a pair of flexible agletted cord handles adjacent to an open mouth of the bag.

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The bag may comprise any suitable flexible material such as paper, light cardboard, plastic film or fabric.

Preferably, the bag comprises a pair of obstruction members for each handle, one obstruction member being fixed to each respective free end of the cord. Alternatively, the bag may include a single obstruction member for each flexible cord handle, such an obstruction member having a pair of cord receiving passageways adapted to be fixed to both free ends of each flexible cord handle.

The free end of the cord may be doubled back on itself before being inserted into the cord receiving passageway of the obstruction member, so that the free end of the cord and the handle are on the opposite side of the bag wall to the obstruction member.

As a matter of choice the obstruction member can be positioned on the interior or exterior side of the bag wall. If the obstruction member is decorative or includes additional advertising material, it may be desirable to have it positioned on an exterior side of a bag.

In a fifth aspect, the present invention provides a method for attaching a flexible cord handle to a bag including the steps of:

forming at least one aperture through a bag wall;

passing an end of a cord having an aglet thereon through said at least one aperture, said aglet comprising detent or barb means biased outwardly thereof which are movable inwardly as the aglet is passed through the aperture and which detent or barb means return to a position outwardly of the aglet to provide a stop preventing removal of the aglet from the aperture in the reverse direction to its passing through the aperture.

In a sixth aspect the present invention provides an aglet for fixing a cord handle to an aperture in a bag wall, said aglet including a longitudinal body part formed with outwardly biased barbs or detent means adapted to retract inwardly as the body part is moved through an aperture during which the barb or detent means contact the perimeter of the aperture.

In a seventh aspect, the present invention provides a method for attaching a flexible cord handle to a bag including the steps of:

forming at least one aperture through a bag wall;

passing an end of a cord having an aglet thereon, through said at least one aperture, said aglet comprising detent or barb means biased outwardly thereof;

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providing at least one obstruction member with at least one aglet receiving cavity therein adapted to receive the aglet of at least one cord, the obstruction member being sized to be unable to pass through the aperture;

inserting the aglet into the aglet receiving cavity of said member so that the detent or barb means are positioned to retain the obstruction member against removal from the aglet.

Preferably, an aglet of the fifth to seventh aspects of the present invention includes an integrally formed stopping surface spaced from the barb or detent means to abut the bag wall at the opposite side of the aperture to that of the barb or detent means when in situ.

The size of the aperture formed through the bag wall is preferably only marginally larger than the largest transverse cross-sectional dimension of the aglet.

The obstruction member provided in accordance with the seventh aspect method may be of many different forms. For example, the cord receiving cavity within the obstruction member may pass entirely through the obstruction member. In such embodiments, the aglet may be positioned some distance away from the end of the cord, and the cord may be passed through the obstruction member until the aglet is located at least partially within the obstruction member. Such an embodiment would provide a length of cord protruding from the obstruction member which may be aesthetically desirable or serve some further useful function.

In other embodiments the obstruction member may provide advertising, for example a company logo printed on the exposed side of the member, or the member may be shaped for the purposes of advertising.

In an eighth aspect the present invention provides a method for attaching flexible cord handles to bags or other receptacles wherein a bag is maintained with a mouth of the bag in an open configuration by means of the application of a partial vacuum to at least one side wall of the bag during which a flexible cord handle is applied to the bag.

Cord handles and their method of attachment applicable to the present invention are as disclosed herein and as proposed in WO97/48550. An alternative form of handle suited to this aspect of the present invention is one wherein a length of flexible cord handle is fitted with elongate stops which extend transversely of the cord and which stops can be aligned

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parallel to the cord to be pushed through apertures in the side wall of the bag before returning to their transverse orientation relative to the cord and so act as a stop which prevents removal of the cord from the bag when the cord is fitted to the bag.

In a ninth aspect of the present invention there is provided a method of fitment of a cardboard or similar base insert into a bag after opening of the mouth of the bag by means of the application of a partial vacuum to at least one side wall of the bag while moving the bag along a pathway whereafter the base insert is placed into the bag and affixed to the interior of the bottom of the bag by adhesive pre-applied to the bottom of the bag and/or to the underside of the base insert. The fitment of a cardboard base into a bag in accord with this aspect of the invention can be readily integrated into the pathway for fitment of handles in accord with the eighth aspect described above with the adding of the base insert to the bag being provided before or after the location at which the handles are fitted or at the handle fitting station.

In one embodiment bags are carried along a pathway so that they are oriented with their mouths uppermost and suction applying means are positioned to contact the exterior of opposite sidewalls of the bag near to the mouth of the bag and draw the bag open via relative movement therebetween while holding a respective bag sidewall under partial vacuum force.

In a tenth aspect, the present invention provides a method and means for fitment of flexible cord handles with pre-applied end stops oriented transversely of the cords as described above. In this aspect a cord is fed to an applying station having means for orienting each end stop in parallel alignment with each adjacent cord section; each end stop then being fed through an aperture in a sidewall of a bag, the end stop being gripped at the opposite face of the sidewall and moved so that each end stop is released and oriented transverse to the axes of the cord on the opposite face of the sidewall, whereafter removal of the cord from the sidewall of the bag is prevented by the stop on the cord contacting the opposite face adjacent the aperture; the largest cross-sectional dimension of the aperture being less than the elongate dimension of the stop.

Brief Description of the Drawings

Embodiments of the invention will now be described by way of example with reference to the accompanying drawings in which:

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Figure 1 is a perspective view of a conventional bag/receptacle;

Figure 2 is a perspective view of one embodiment of a bag according to the present invention;

Figure 3 is a cross-sectional view of an embodiment of the invention in which the obstruction member is larger than the aperture in the bag wall;

Figure 4a shows a cross-sectional view of an embodiment in which the obstruction member is smaller than the aperture in the bag wall;

Figure 4b shows a cross-sectional view in which the obstruction member has been deformed to become larger than the aperture in the bag wall;

Figure 5a shows a cross-sectional view of an embodiment in which a heavier duty aglet is used, serving the function of an obstruction member;

Figure 5b shows a cross-sectional view of an embodiment in which a heavier duty aglet has been deformed to become larger than the aperture in a bag wall;

Figure 6 is a diagrammatic part cross-sectional view of a first embodiment of the present invention in situ;

Figure 7 is a diagrammatic part cross-sectional view of a second embodiment of the present invention in situ;

Figure 8 is an isometric view of a half aglet in accord with a further embodiment;

Figure 9 is an isometric view of a schematic arrangement of one embodiment of the interior workings of a handle applying station;

Figure 10 is a view of the embodiment of Figure 9 detailing the cord handle supplying arrangement omitted from Figure 9 for reasons of clarity;

Figure 11 is a cross-sectional view X-X of Figure 10;

Figure 12 is a schematic plan view of a base inserting station;

Figure 13 is a schematic transverse cross-sectional view of a first embodiment of a cord handle applying and fixing station;

Figure 14 is a plan view of Figure 13;

Figure 15 is a perspective view of a form of bag handle suitable for use in the present invention;

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Figure 16 is a transverse cross-sectional view of a bag handle applying station for fitting of cord handles in accord with Figure 15; and

Figure 17 is a plan view of the arrangement shown in Figure 1.

Detailed Description of the Preferred Embodiments

As shown in Figure 1, a conventional bag 10 is defined by a plurality of walls 15 with an open upper end 20 and a closed lower end 25.

Adjacent its upper end are a pair of flexible cord handles 30, 40 on approximately opposite sides of the bag. The flexible cord handles 30, 40 pass through respective pairs of apertures 31, 32 and 41, 42 in the bag walls.

As per conventional practice, the free ends of the handles are tied in knots 35 (not shown) and 45 on the interior side of the bag such that the ends of handles 30, 40 cannot slide through the apertures in the bag wall and the handle disengage from the bag.

As previously discussed, however, this conventional process is labour intensive, expensive and unreliable.

Figure 2 shows a bag according to the present invention which replaces the knots 35 and 45 with obstruction members 50 fixed to the free ends of the handles 30, 40. The bag 10 may comprise any suitable flexible material such as paper, light cardboard, plastic film or fabric.

The free ends of each handle 30, 40 may be doubled back before being inserted into the cord receiving passageway of the obstruction members 50, so that the free ends of the handles 30, 40 are on the opposite side of the bag wall to the obstruction members 50.

Figure 3 shows an embodiment of the present invention, in which a section 31 of the agletted cord handle 30 is in a position to be passed through an aperture 16 in the bag wall 15 and into a cord receiving cavity 51 of an obstruction member 50. The aglet 32, once positioned at least partially within the cavity 51, may then be bonded to the obstruction member 50 by applying sufficient heat to cause bonding. The step of heating the obstruction member 50 may be performed using microwave heating techniques. In cases such as this the heating preferably occurs only within a small part of the obstruction member 50 close to the aglet 32. Such a technique may be desirable for the purposes of speed, efficiency of production, or to minimise heat damage to the cord 31 or aglet 32. Once the aglet 32 and the obstruction member 50 are bonded together, the cord has then been securely attached to the

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bag. The aglet 32 must therefore be sufficiently firmly attached to the cord 31 to hold the cord 31 in place when in use as a bag handle.

Note that the obstruction member 50 is large enough that it is unable to pass through the aperture 16. Note also that the aperture 16 formed in the bag wall 15 is only marginally larger than the agletted cord 31. This means that the strength of the bag wall 15 is less affected by the aperture 16, and also allows a smaller (and hence cheaper) obstruction member 50 to be used.

Figure 4a shows an embodiment in which the obstruction member 50 has dimensions such that it may pass through the aperture 16 of the bag 15. In this embodiment, the obstruction member 50 has been bonded to the aglet 32 prior to passing the cord 31 through the aperture 16. As it is clear in Figure 4a that the obstruction member 50 will not secure the cord handle 31 to the bag, the obstruction member 50 is subsequently deformed so that it becomes large enough to prevent the cord 31 passing through the aperture 16, as shown in Figure 4b. The deformation may be effected by applying sufficient heat to the obstruction member 50 that it becomes malleable, and then applying a force in order to distort the shape of the obstruction member 50. The obstruction member 50 then cools and sets in the new shape.

Figure 5a shows an embodiment in which the aglet 32 functions as the obstruction member 50. Once again, it is clear in Figure 5a that the aglet 32 will not secure the cord handle 31 to the bag, so the aglet 32 must be deformed so that it becomes large enough to act as an obstruction member and prevent the cord 31 passing through the aperture 16, the end result being shown in Figure 5b.

Clearly, the aglet 32 used in the embodiment shown in Figure 5a and Figure 5b must be of greater mass, in order that it may provide a sufficiently sturdy obstruction once it is deformed such that its dimensions no longer permit it to pass through the aperture 16.

Although the invention has been described with reference to particular examples of the invention, it should be appreciated that it may be exemplified in other forms. For instance, the obstruction member can be positioned on the interior or exterior side of the bag wall. If the obstruction member is decorative or includes additional advertising material, it may be desirable to have it positioned on an exterior side of the bag.

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The cord receiving cavity of the obstruction member may pass entirely through the obstruction member, or alternatively the cavity may intrude only partially into the obstruction member. In cases where the cavity only extends partially into the obstruction member, it is important that the aglet is positioned close enough to the end of the cord that when the cord is inserted into the cavity, the aglet becomes positioned at least partially within the cavity.

In each of Figures 6 and 7 a section through an aperture 60 in a side wall 61 of a bag 62 is fitted with an aglet 63.

In Figure 6 aglet 63 comprises flexibly biased barbs 64 which retract as aglet 63 is pushed through aperture 60 and spring back to their retaining position as shown when they have passed through aperture 60.

The embodiment of Figure 7 incorporates an additional retaining washer 65 interposed between barbs 64 and side wall 61.

The bag handle sections as shown in Figures 6 and 7 include a flexible cord portion to which aglet 63 is affixed.

In an embodiment, each aglet is formed by two halves divided longitudinally as shown by the half aglet 70 of Figure 8. Each half aglet 70 is to be joined to a like half about a cord end. Each half piece 70 preferably includes inwardly projecting gripping barbs or teeth 71 which pass into the cord and hold the cord to the aglet when the two halves 70 are joined together by adhesive or microwave welding or similar.

The handle applying station 80 depicted in Figures 9 and 10 receives bags 81, which are gripped by moveable suction force grippers 82, being moveable under the action of a pneumatic or hydraulic pick and place cylinder 83 which moves to reach out to grip a bag and draw it on to a set of suction grippers 82. A plurality of such gripper sets 82 are mounted on an indexing chain drive system 84.

The pick and place cylinder 83 and its suction grip is withdrawn from a bag 81 once that bag is gripped at a station 82. Movement of the indexing chain drive system 84 to which the bag gripping sets 82 are mounted carries a bag 81 to a cord handle applying station as shown in Figure 11.

At the cord applying station of Figure 11 a predetermined length of cord is furnished. Figure 10 depicts one form of producing a predetermined length of cord which is supplied

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from a continuous cord length 85 travelling around cord indexing wheel 16 mounted atop the unit 80. Cord pick-up clamp and cylinder 87 draws a length of cord from the continuous length 85, which is then cut to size by hot wire core cutter 88 to be readied for insertion into bag 81 at the cord applying station of Figure 11. Typically, the form of cord could be as shown in any of Figures 3-5b or of a form as depicted in Figure 15 hereof.

A bag opening suction cup and pneumatic/hydraulic cylinder 89 is activated to open the mouth of bag 82 against the holding action of bag indexing suction cup and cylinder assembly 82. The ends of a length of cord handle are then passed through bag handle apertures formed in the sidewalls of a bag 81 at hole punching station 90 upstream of the handle applying station of Figure 11. The Figure 11 embodiment depicts a moveable heater block assembly 96 for shaping an aglet in accord with Figure 5b. For reasons of clarity, a bag handle applying station is shown in Figures 10 and 11 fitting handles only to one sidewall of a bag whereas the other sidewall can have a handle fitted by an arrangement which substantially mirrors the cord supplying, cutting and fitting arrangement shown in Figures 10 and 11.

At the completion of the handle applying and other optional actions of station 80 each bag is removed from station 80 by means of out place cylinder 95 and its attached suction pad gripper which holds bag 81.

The schematic of Figure 12 shown one arrangement for feeding and fitting a stiff base member or insert to the interior of a bag. A base insert member 91 is supplied from a stack under the action of a servo indexing drive system 92. The topmost base insert 91 is gripped under the action of a vacuum force pick up 93, having a vacuum pad 94. Vacuum pad 94 traverses with a gripped base insert 91 to a location in the path of movement of bags 81 in apparatus 80 where the mouth of bag 81 is open. The base insert 91 is then fitted within the bag 81 as shown in the left hand schematic of Figure 12 under the action of variably displaceable tiltable and placing cylinders 97; the vacuum force of pad 94 is released at a predetermined location within the bag so that the released base insert 91 falls to the bottom of the bag 81 to form a stiffener for the base of the bag. Preferably, the base insert 91 is adhered to the base of the bag, by adhesive located on the interior of the base of the bag or positioned on the underside of base insert member 91. By this means an insert 91 is fixably retained against the base of bag 81.

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Figures 13 and 14 depict in more detail an arrangement where aglets of the form of Figures 5a and 5b are passed through openings in a bag 81 under the action of a cord inserting cylinder 100. Aglet 101 being gripped by cord insertion handling clamp 102 mounted on rotary cylinder 103 adapted to move toward bag 81 under action of cord inserting cylinder 100.

Heating block 104 is inserted into the mouth of bag 81 so that the free end of aglet 101 contacts block 104 within the bag to shape the free end of aglet 101 to a size which cannot thereafter pass out of bag handle aperture 105 in bag 81. In the Figure 14 view, cord insert guide tool 106 is shown which has been omitted from Figure 13 for reasons of clarity.

The cord handle of Figure 15 is formed by a flexible cord section 110 with transverse end stops 111. Such a cord can be supplied as discrete items or as a series of repeated sections on a continuous length of cord fed to a cord applying station which severs the discrete sections before their application as handles to a bag.

The embodiment of Figures 16 and 17 is similar to that of Figures 13 and 14, but in this case a cord handle of the form of Figure 15 is applied by passing respective end stops 111 through apertures 105, which upon their release reorient to lie transversely of respective apertures 105, and of their adjacent section of cord 110. As shown in Figure 16, interiorly of the mouth of bag 81, there is positioned a bag holding clamp assembly 120 to aid the stable positioning of the side wall of bag 81 relative to the movement of end stop 111 under the action of cord inserting cylinder 100.

While the present inventive method and apparatus has been described in relation to attaching flexible handles to bags, it will be understood by persons skilled in the art that the inventive obstruction member, method and apparatus are equally suitable for other types of receptacles for example buckets, boxes, baskets etc with flexible cord handles.

The obstruction member may include advertising material for example the name of the retail outlet providing the bags to its shoppers or may be shaped in the form of a company logo or symbol. The step of deforming the obstruction member may be performed in such a way that the obstruction member provides advertising material or decoration. The use of an appropriately shaped tool to perform the deformation may make this process simpler. Of

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course, in such a case it may be beneficial to position the obstruction member on the exterior side of the bag.

It will be further appreciated by persons skilled in the art that numerous variations and/or modifications may be made to the invention as shown in the specific embodiments without departing from the spirit or scope of the invention as broadly described. The present embodiments are, therefore, to be considered in all respects as illustrative and not restrictive.

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The Claims defining the invention are as follows:

1. A method for attaching a flexible cord handle to a bag comprising the steps of:
 - forming at least one aperture through a bag wall;
 - passing an end of a cord, having an aglet thereon, through the at least one aperture in the bag wall;
 - providing at least one obstruction member with at least one cord receiving cavity therein adapted to receive the aglet of at least one cord;
 - inserting the aglet into the cord receiving cavity of the obstruction member so that the aglet is located at least partially within the cavity; and
 - bonding the aglet to the obstruction member.
2. A method for attaching a flexible cord handle to a bag comprising the steps of:
 - forming at least one aperture through a bag wall;
 - passing an end of a cord, having an aglet thereon, through the at least one aperture without substantially deforming said aglet; and
 - shaping the aglet to form an obstruction member which cannot pass through the aperture.
3. An obstruction member for attaching a cord handle to a bag or other receptacle, the obstruction member comprising:
 - a cord receiving cavity adapted to engage an agleted cord;
 - said member being large enough, or being adapted to be permanently deformed so as to become large enough, to be unable to pass through an aperture in the bag wall; and
 - being of a material adapted to be bonded to the aglet.
4. A cord adapted to form the handle of a bag, said cord comprising an aglet at at least one end, said aglet being adapted to be affixed to an obstruction member or shaped to form an obstruction member sized to be unable to pass through a predetermined aperture in a bag wall.
5. A bag comprising a handle formed from a cord as claimed in claim 4.
6. A bag as claimed in claim 5 when made from paper, cardboard, plastics, film or cloth or any combination thereof.

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7. A method for attaching a flexible cord handle to a bag including the steps of:
- forming at least one aperture through a bag wall;
 - passing an end of a cord having an aglet thereon through said at least one aperture, said aglet comprising detent or barb means biased outwardly thereof which are movable inwardly as the aglet is passed through the aperture and which detent or barb means return to a position outwardly of the aglet to provide a stop against the bag wall preventing removal of the aglet from the aperture in the reverse direction to its passing through the aperture.
8. A method for attaching a flexible cord handle to a bag including the steps of:
- forming at least one aperture through a bag wall;
 - passing an end of a cord having an aglet thereon, through said at least one aperture, said aglet comprising detent or barb means biased outwardly thereof;
 - providing at least one obstruction member with at least one aglet receiving cavity therein adapted to receive the aglet of at least one cord, the obstruction member being sized to be unable to pass through the aperture;
 - inserting the aglet into the aglet receiving cavity so that the detent or barb means are positioned to retain the obstruction member against removal from the aglet.
9. A method as claimed in claim 7 or 8 wherein a disc or washer is fitted between the detent or barb means and the bag wall.
10. An aglet for fitment to a cord handle and adapted to fix the cord handle to an aperture in a bag wall, said aglet including a longitudinal body part formed with outwardly biased barbs or detent means adapted to retract inwardly as the body part is moved through an aperture during which the barb or detent means contact the perimeter of the aperture.
11. An aglet as claimed in claim 10 which includes an integrally formed stopping surface spaced from the barb or detent means to abut the bag wall at the opposite side of the aperture to that of the barb or detent means when in situ.
12. A method for attaching flexible cord handles to bags or other receptacles wherein a bag is maintained with a mouth of the bag in an open configuration by means of the application of a partial vacuum to at least one side wall of the bag during which a flexible cord handle is applied to the bag.

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13. A method as claimed in claim 12 wherein the handle comprises a length of flexible cord fitted with elongate stops which extend transversely of the cord and which stops are aligned parallel to the cord before being pushed through respective bag apertures and then returned to their transverse orientation relative to the cord to act as a stop preventing removal of the cord from the aperture in a direction opposite to the direction of insertion of the cord and stop through the aperture.

14. A method of fitment of a cardboard or similar base insert into a bag after opening of the mouth of the bag by means of the application of a partial vacuum to at least one side wall of the bag while moving the bag along a pathway whereafter the base insert is placed into the bag and affixed to the interior of the bottom of the bag by adhesive pre-applied to the bottom of the bag and/or to the underside of the base insert.

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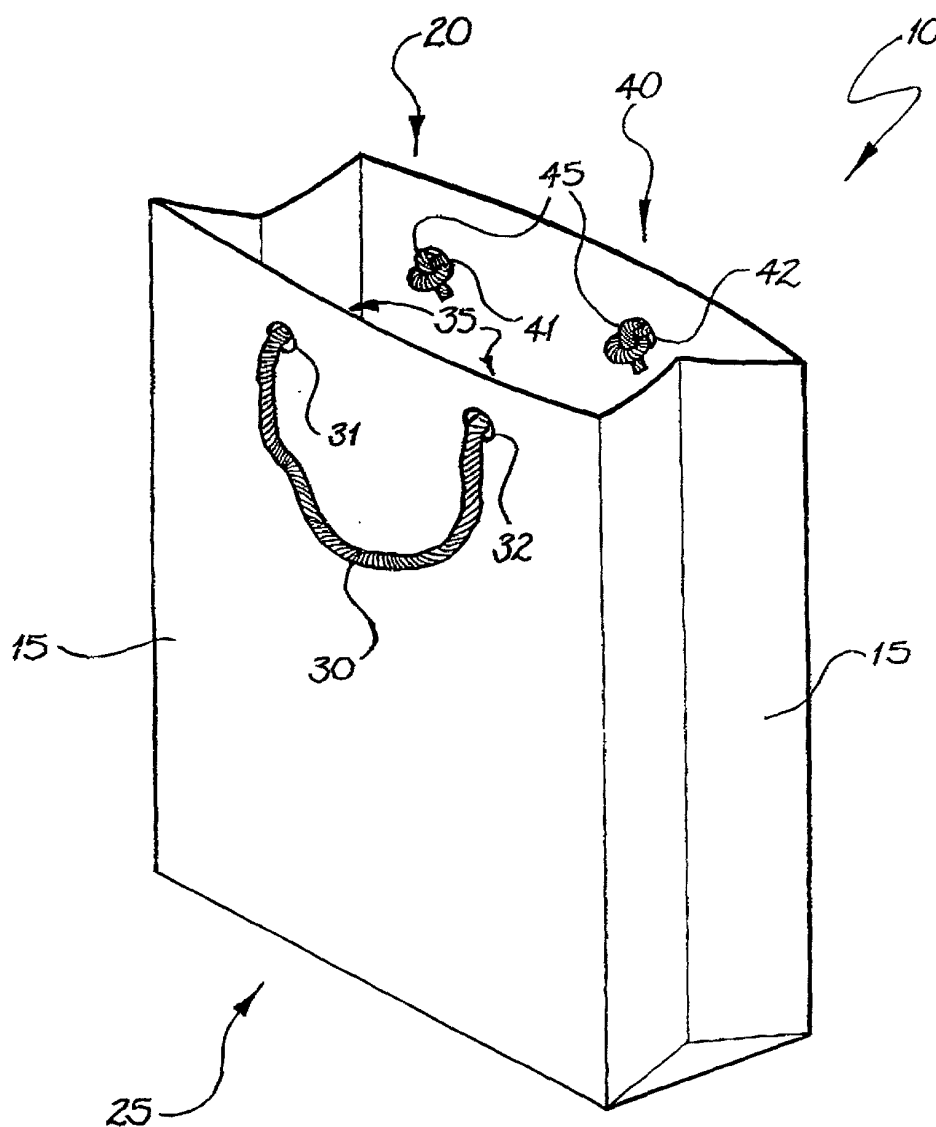
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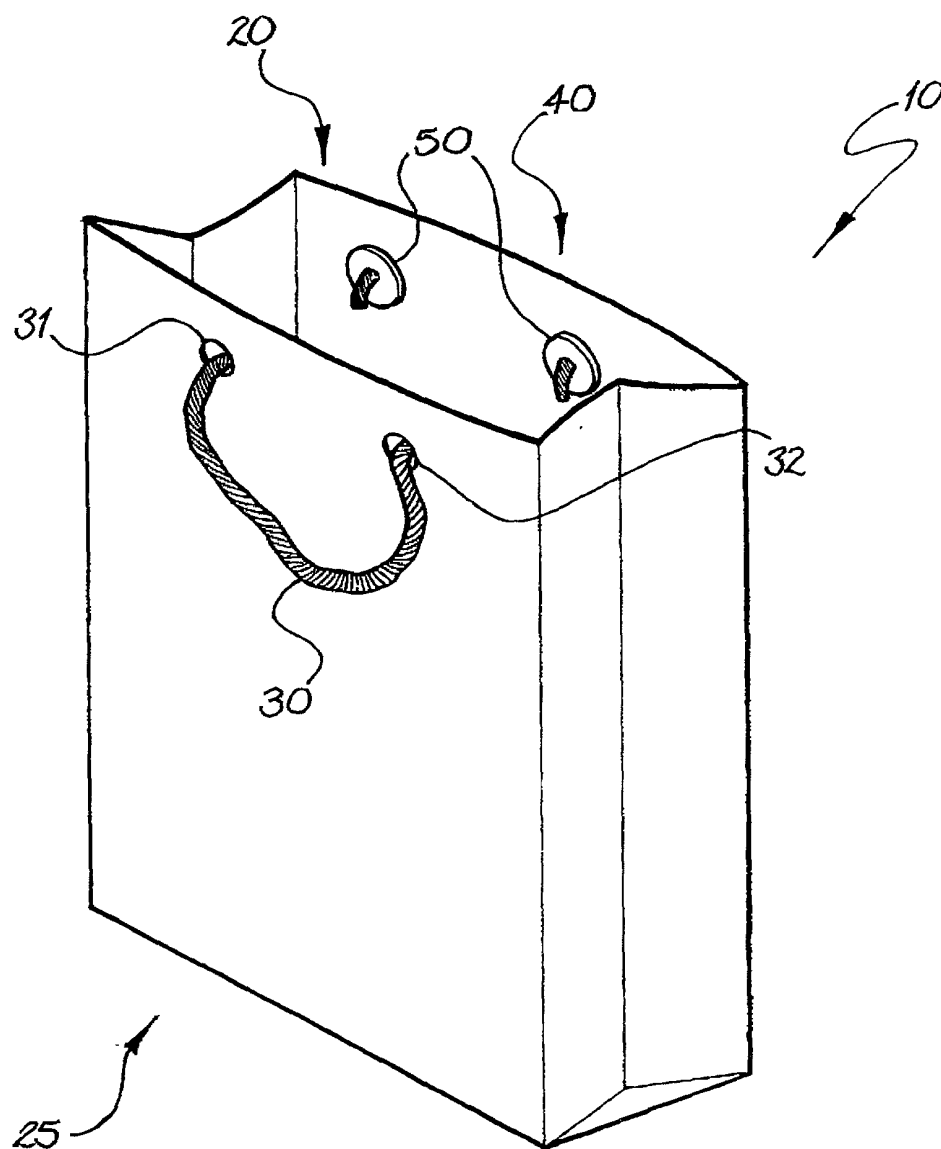


FIG. 2

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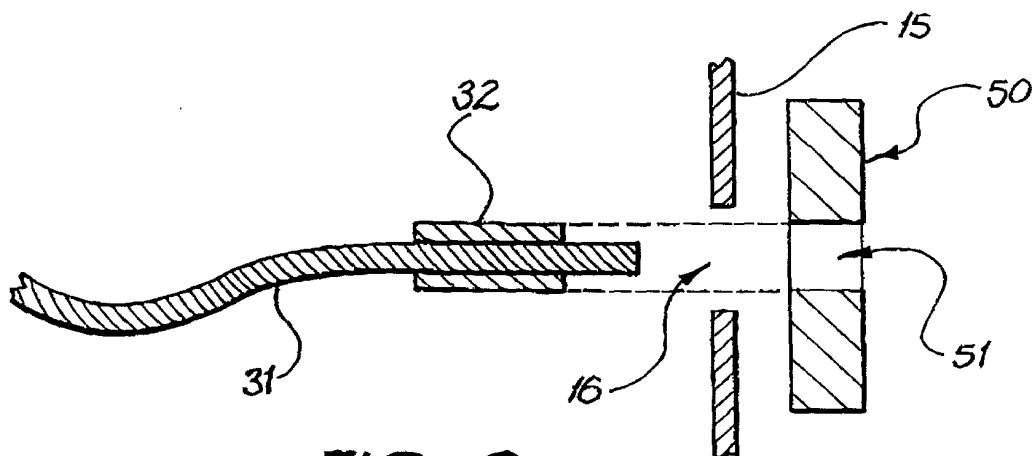


FIG. 3

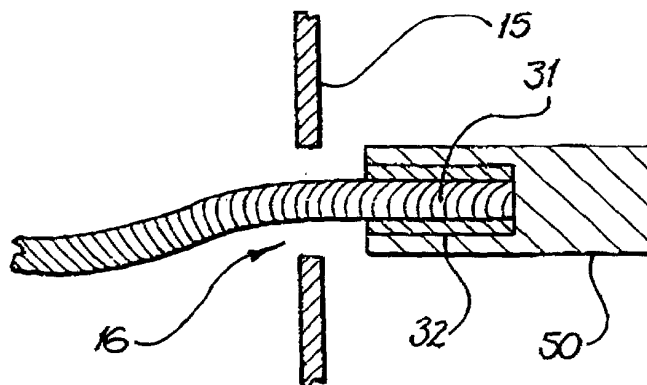


FIG. 4a

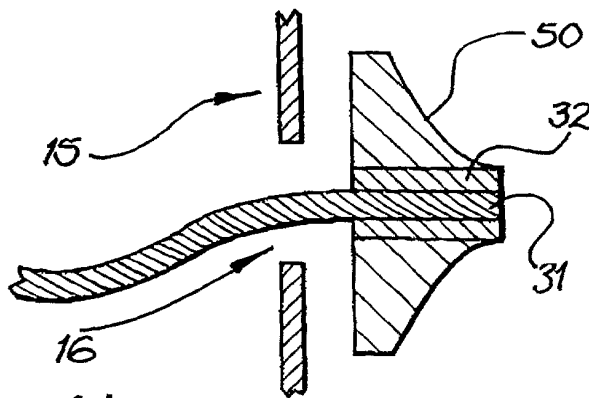


FIG. 4b

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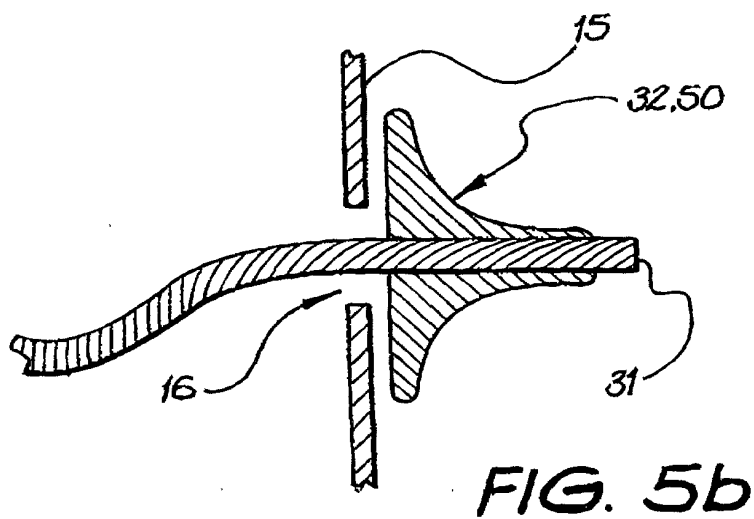
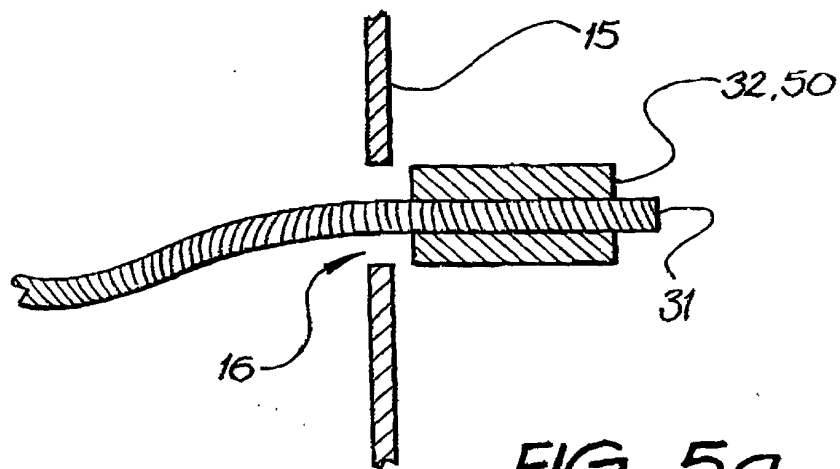
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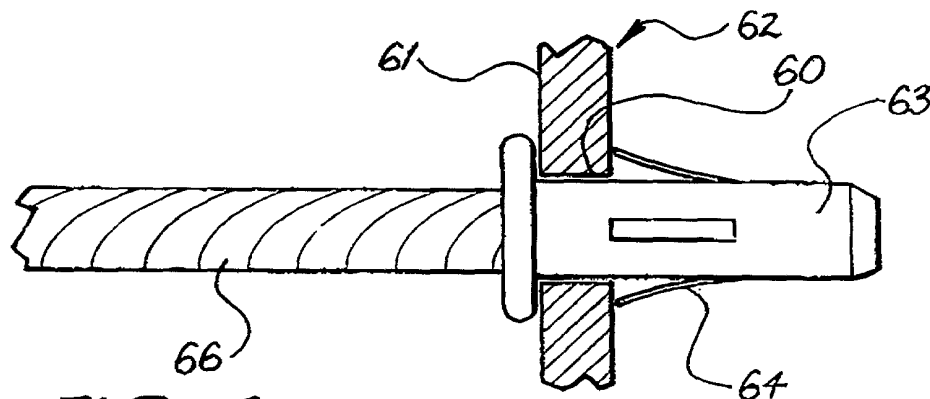


FIG. 6

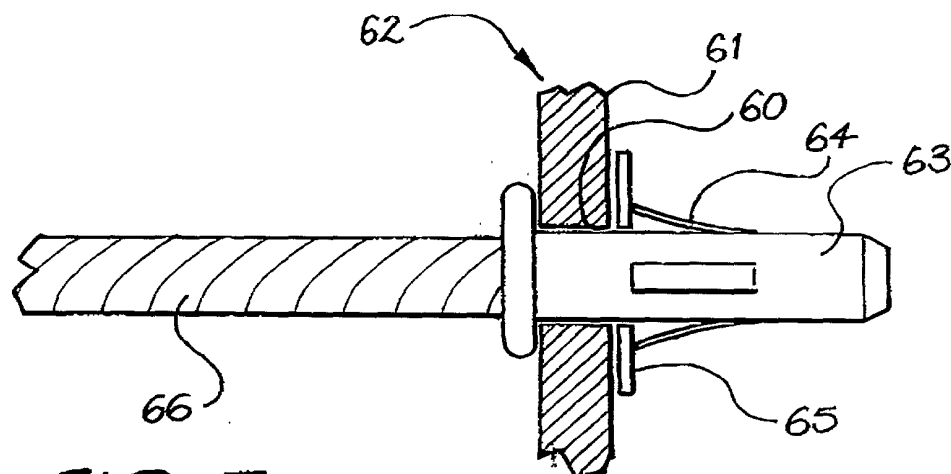


FIG. 7

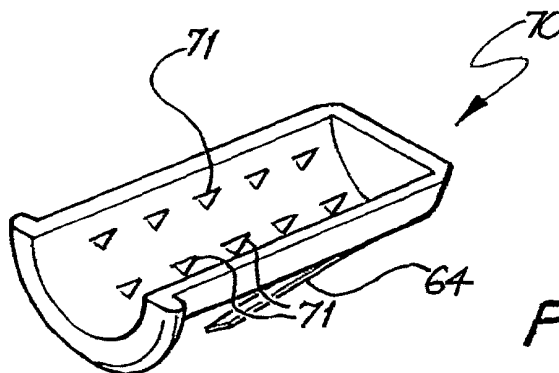


FIG. 8

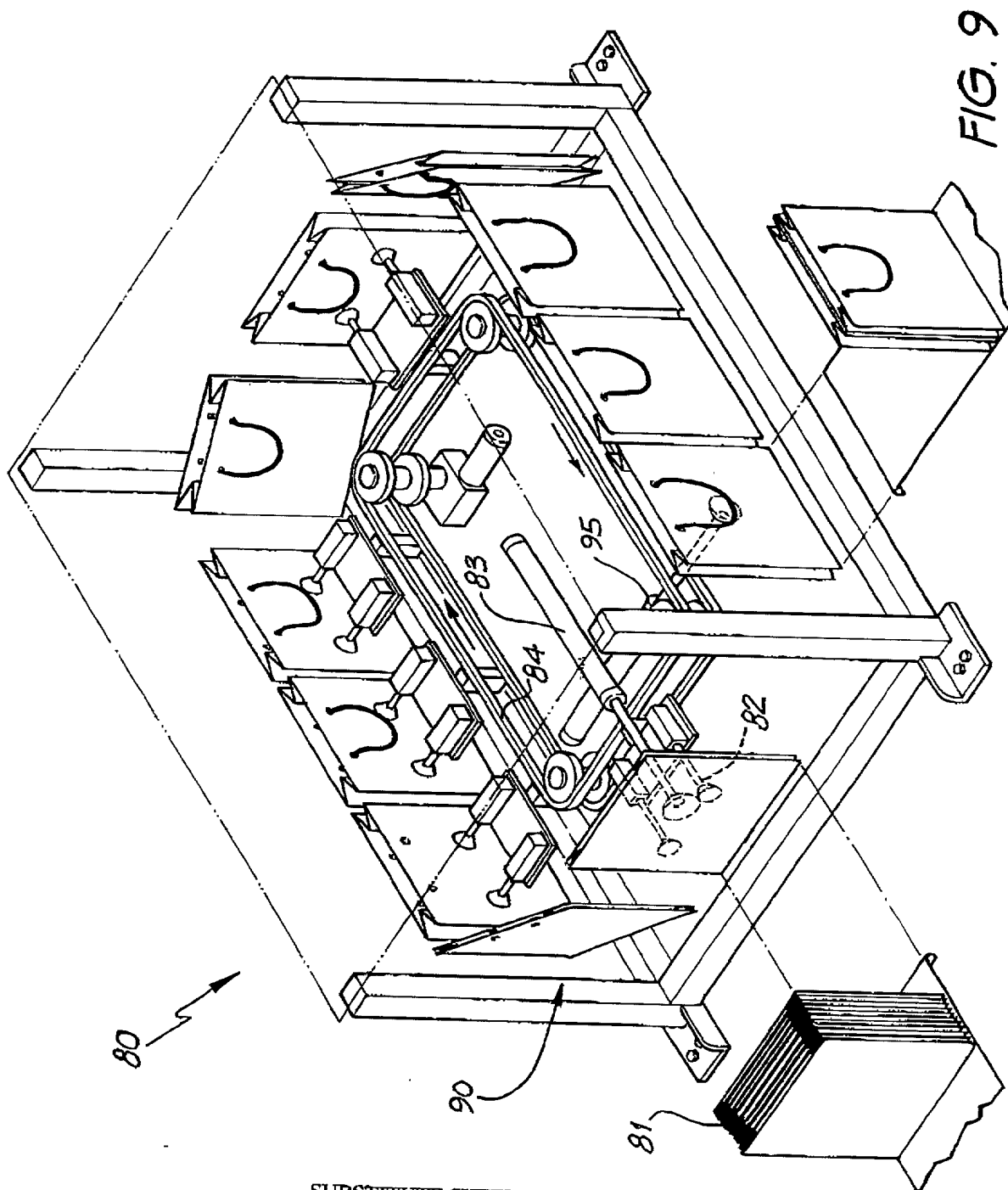
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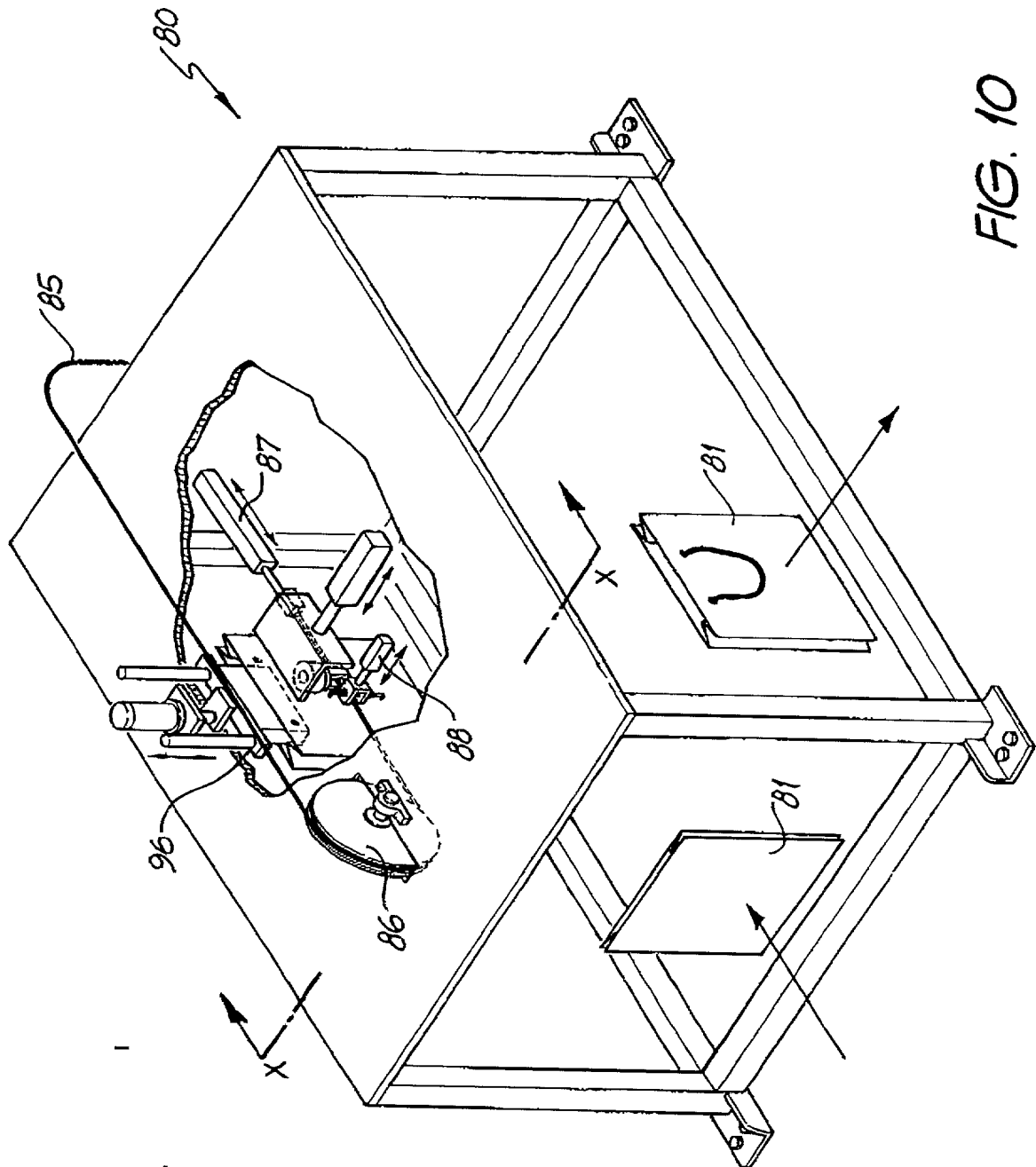
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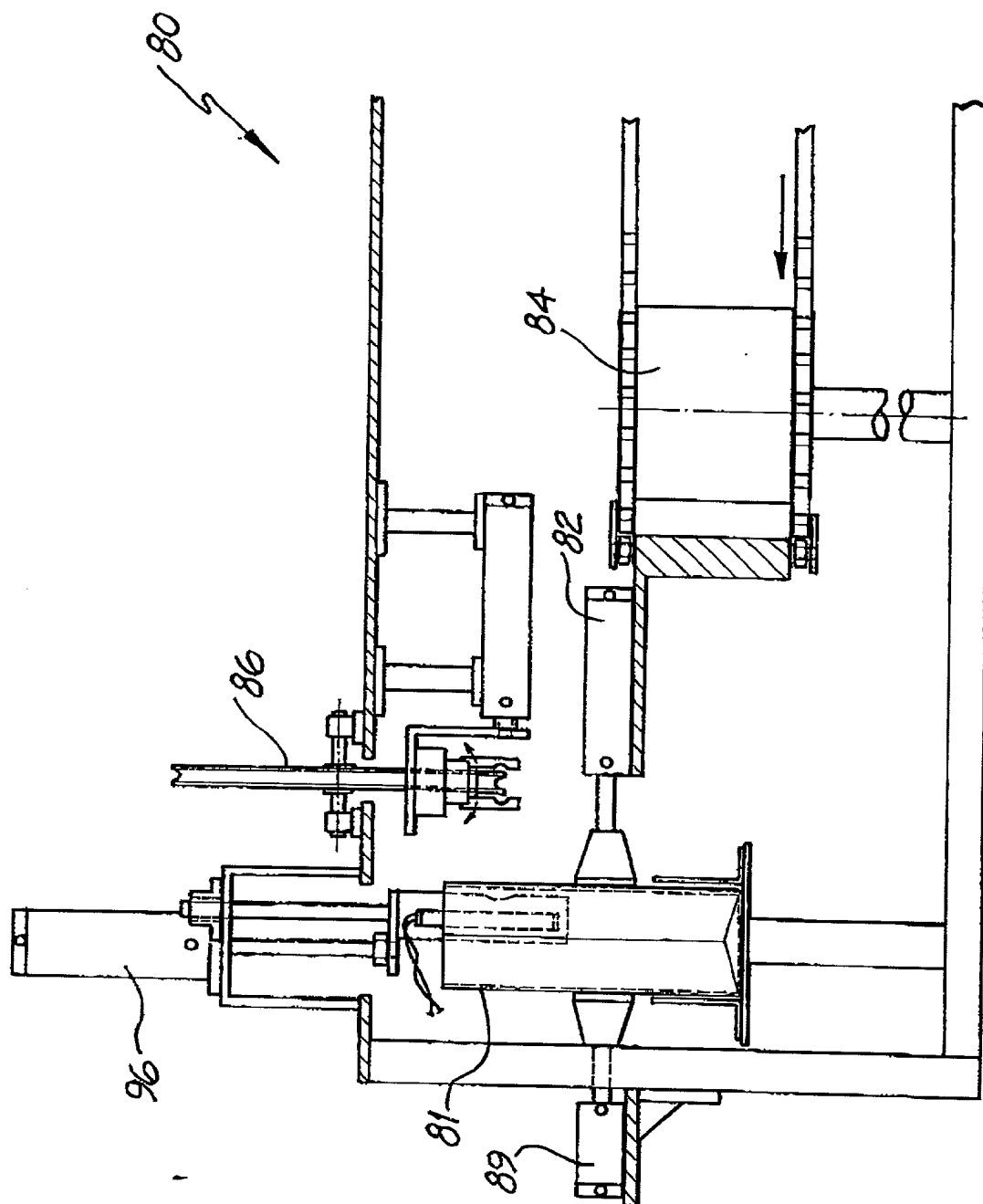


FIG. 11

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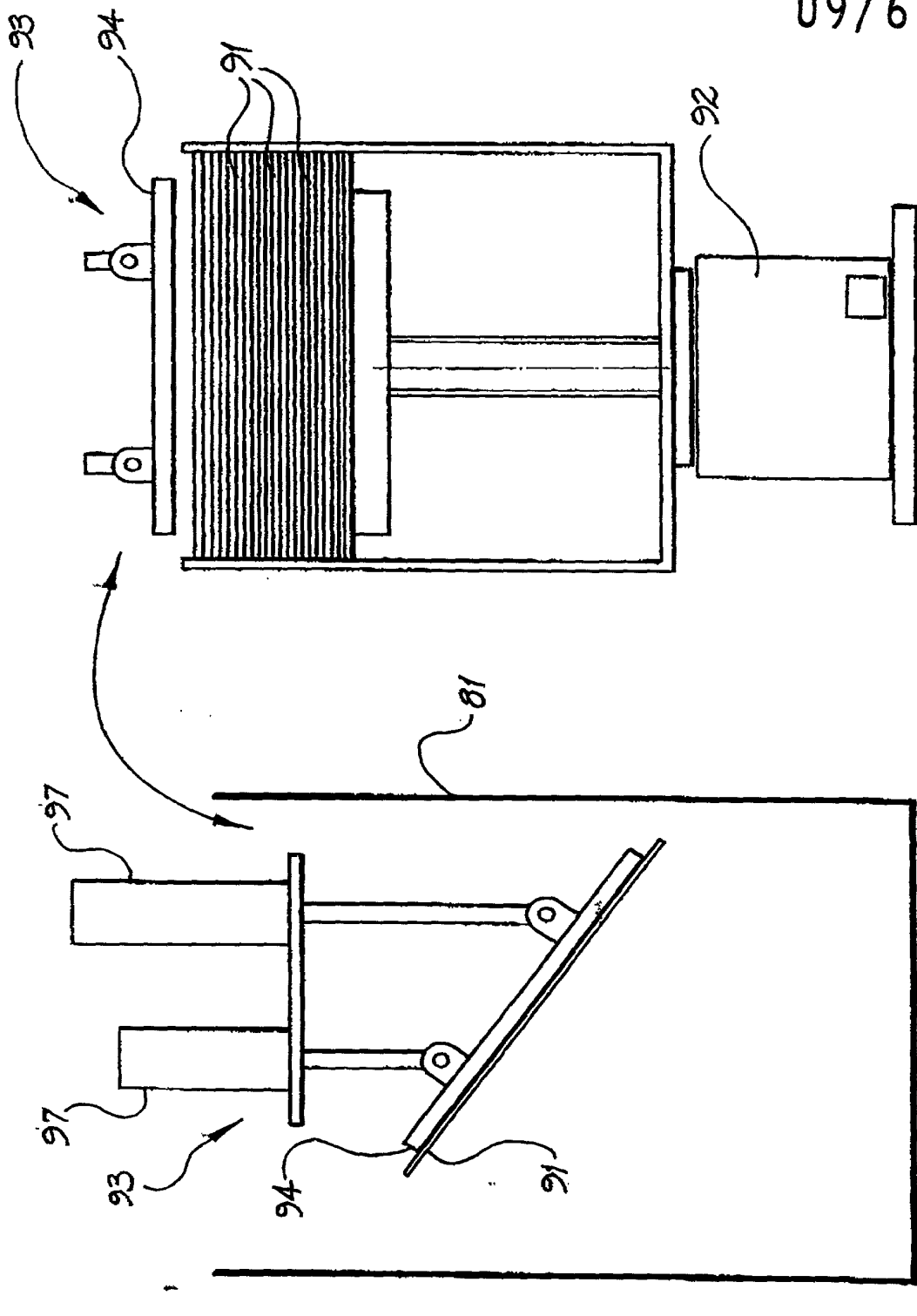


FIG. 12

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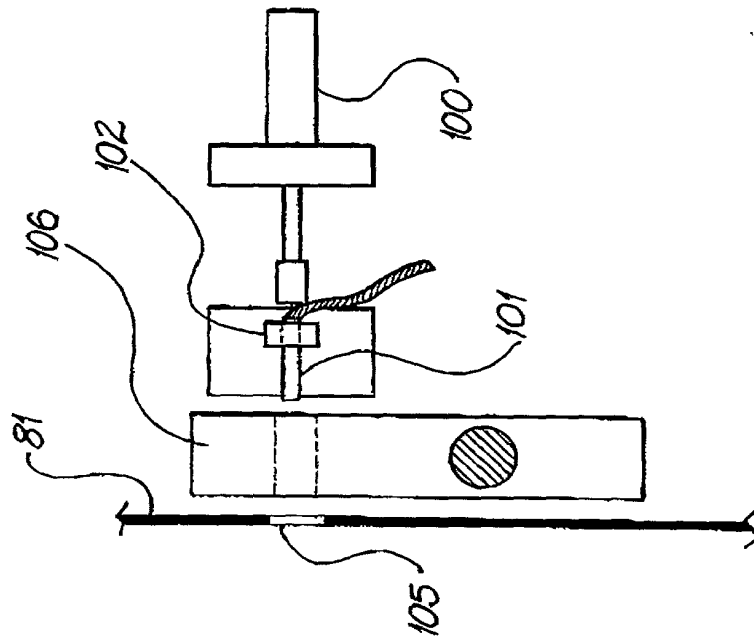


FIG. 14

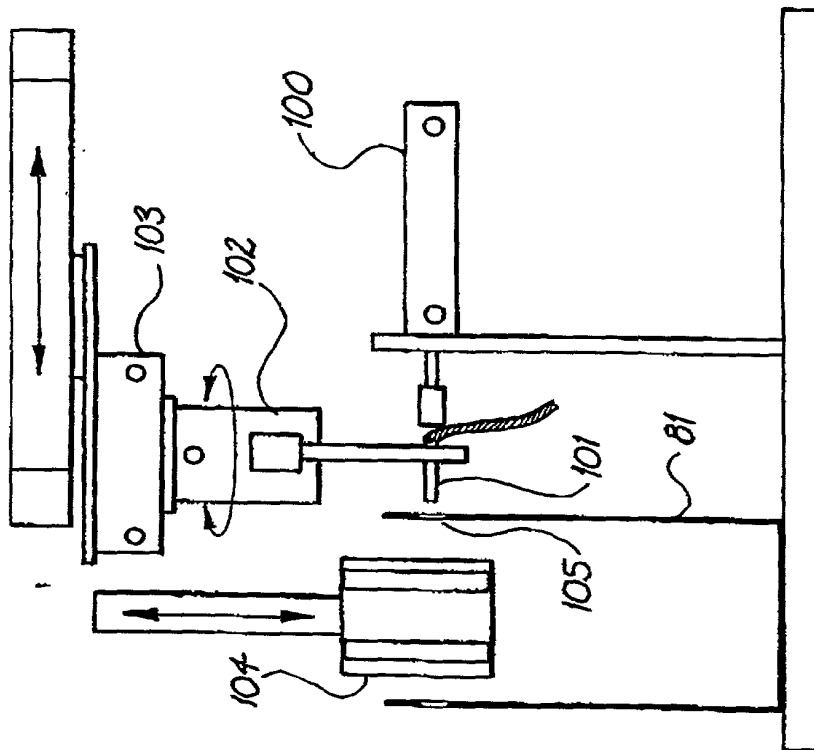


FIG. 13

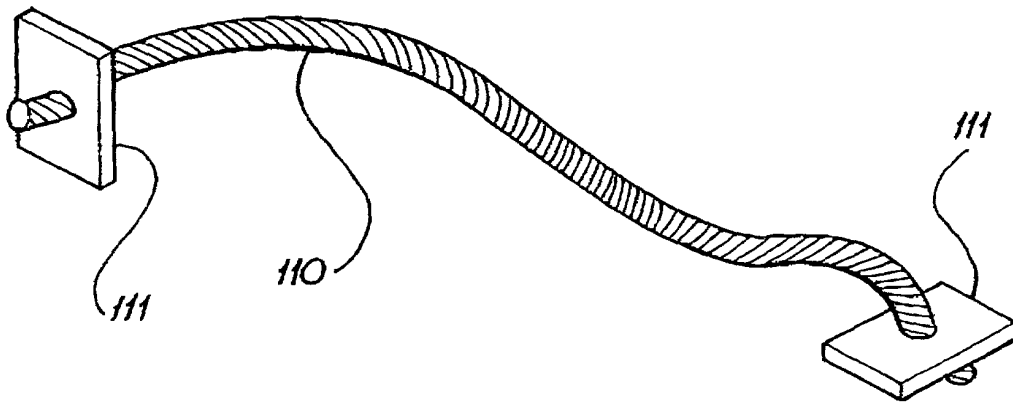
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*FIG. 15*

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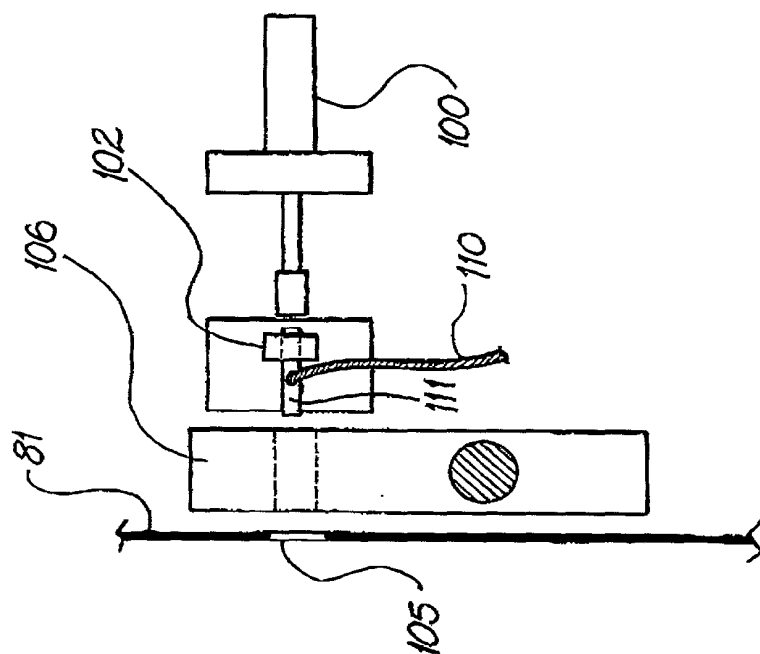


FIG. 17

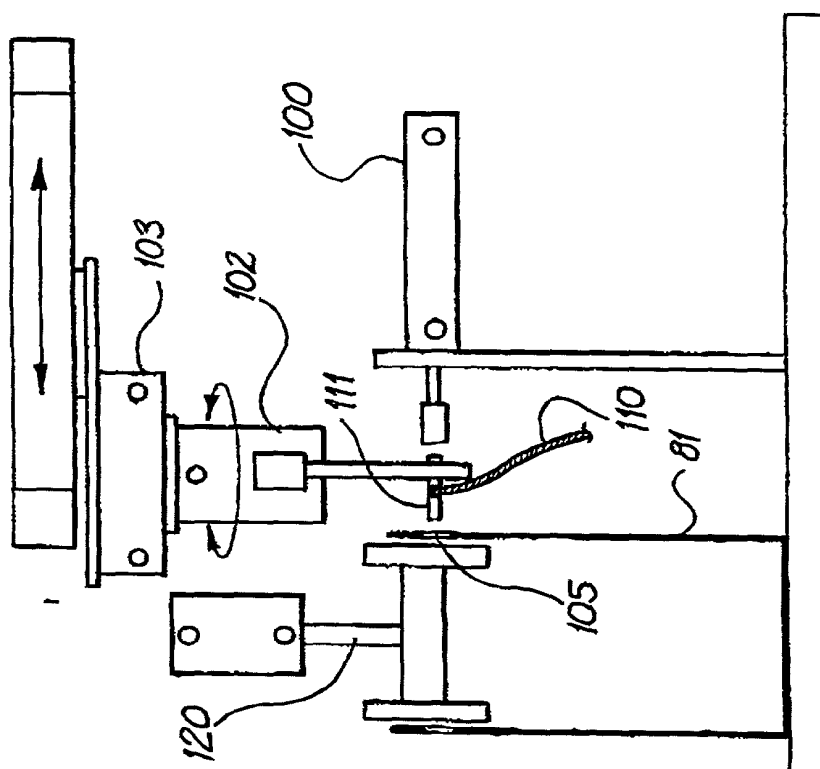


FIG. 16

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FIG. 17

DECLARATION - USA PATENT APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name;

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled BAG HANDLE AND METHOD AND MEANS OF ATTACHMENT the specification of which:

- (a) ☐ is attached hereto; or
- (b) ☒ was filed on October 24, 2000 as Application No. 0 9/674,142 or Express Mail No., as Application No. not yet known EL 485 609 192 US and was amended on _____ (if applicable); or
- (c) ☐ was described and claimed in PCT International Application No. _____ filed on _____ and as amended under PCT Article 19 on _____ (if any) and/or under PCT Article 34 on _____ (if any).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above;

I acknowledge the duty to disclose information which is material to the patentability of this application in accordance with Title 37, Code of Federal Regulations, § 1.56;

I hereby claim foreign priority benefits under Title 35, United States Code, § 119 of any foreign application(s) for patent, design or inventor's certificate or any PCT international application(s) listed below and have also identified below any foreign application(s) for patent, design or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed for the same subject matter having a filing date before that of the application(s) of which priority is claimed:

PRIOR FOREIGN APPLICATION(S)

COUNTRY (OR INDICATE IF PCT)	APPLICATION NUMBER	DATE OF FILING (day, month, year)	PRIORITY CLAIMED UNDER 37 U.S.C. § 119
PCT	PCT/AU99/00308	23/04/99	<input checked="" type="checkbox"/> YES NO <input type="checkbox"/>
AUSTRALIA	PP3176	24/04/98	<input checked="" type="checkbox"/> YES NO <input type="checkbox"/>
AUSTRALIA	PP4605	10/07/98	<input checked="" type="checkbox"/> YES NO <input type="checkbox"/>
AUSTRALIA	PP7424	01/12/98	<input checked="" type="checkbox"/> YES NO <input type="checkbox"/>
			<input type="checkbox"/> YES NO <input type="checkbox"/>

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s) listed below, and insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code § 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, § 1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

Prior U.S.A. Application(s)

Application No.: _____ Filing Date: _____ Status: _____

I hereby declare that all statements made herein, of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful, false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of sole or first inventor: Elwin Lorenzo BogatezInventor's signature _____ Day 15 Month 12 Year 2000Residence (city and country): Sydney AustraliaCitizenship: AustralianPost Office Address: 51-57 Carlotta Street, Artarmon, New South Wales, 2064, AUSTRALIA NSW AU

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